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*Catalogue of the Lepidoptera Phalaenæ in the British Museum.* Vol. XIII. Noctuidæ (part). By SIR G. F. HAMPSON, Bart. London, 1913. Pp. xiv + 609.

In this volume the consideration of the Noctuidæ is continued, the subfamily Cato-calinæ being concluded from Vol. XII., the Mominæ and Phytometrinæ (better known as Plusiinae), being given in full. There are 70 genera and 679 species included, besides some unrecognized ones. Colored plates CCXII. to CCXXXIX. accompany the volume.

Some of our most familiar names disappear, not by necessity, but by the author's non-recognition of the names in Hübner's "Tentamen" and "Zuträge." *Euclidia* Hübn. (Tent.) is replaced by the totally unfamiliar *Gonospileia* Hübn. (Verz.); *Agnomonina* Hübn. by *Argyrostromis* Hübn. (Verz.); *Plusia* Hübn. (Tent.) by *Phytometra* Haw., which changes the familiar sub-family Plusiinae to Phytometrinæ. However, this is in part set off by the retention of *Phurys* Guenée, which should have been replaced by *Crochiphora* Hübn. (Zutr.). According to the rules of nomenclature it appears to us that Hampson is clearly wrong in discarding these names.

On page 188, my species *distilla* is made a synonym of *Safia amella* Guen., but it is, in fact, abundantly distinct.

On page 207, *Zale* Hübn. is used instead of *Phæocyma* Hübn., by page priority, although the late J. B. Smith used *Phæocyma* in the monographic treatment of the American species. We are in favor of Hampson's action, and mention it only because it was held at the National Museum at the time that Smith could use either name he chose.

On page 331 some corrections of previous volumes appear. Our familiar genus *Erebus* replaces *Nyctipao* (Vol. XII., p. 273), a purely Asiatic genus and is lost to us. Likewise *Melipotis* Hübn. replaces *Ercheia* Walk., an old world genus, and disappears from our lists.

Under the Mominæ, my genus *Zazunga*<sup>1</sup> should have been included, with two species *zetacelis* and *opior*. It would fall in the

table with *Elydnodes*, but the thorax is clothed with hair only.

HARRISON G. DYAR

*Einführung in die Vererbungswissenschaft.*

By RICHARD GOLDSCHMIDT. Second edition. Leipzig, Wilhelm Engelmann. 1913. Pp. 546. Price 14 marks.

The second edition of this work has been somewhat enlarged and in part rewritten. The first alteration to challenge attention is the thorough rearrangement of certain parts of the book. The chapters on Mutation and on the Inheritance of Acquired Characters are related to one another, and both are deferred to near the end of the book, after the sections on hybridization and sex determination. In the first edition those chapters are in the early part of the book, immediately after the discussion of variation. Graft hybrids and chimeras, instead of following hard upon Mendelian hybrids, are not discussed until after sex determination. Other chapters of the old edition are divided and the parts recombined. For example, the cellular basis of heredity is taken up in connection with sex determination, instead of independently; while minor sections are freely shifted under new captions. These changes appear to the reviewer to be in the interest of logical presentation.

The most extensive addition to the book is in the treatment of sex determination, sex inheritance, etc. These chapters are enlarged to the extent of about 35 pages. The striking feature of this enlargement is a proposed new formula for sex inheritance. Each sex is represented as containing factors for both sexes; one sex is homozygous for both these factors, the other is heterozygous for one of them and homozygous for the other. The factors are then weighted, in a manner not unlike that proposed by Spillman,<sup>1</sup> so that in one case femaleness, in the other maleness, come to expression. This formulation thus maintains the form of Mendelian inheritance, but contains elements of the quantitative theory of sex determination. The formula

<sup>1</sup> Spillman, W. J., *Amer. Nat.*, Vol. 44, 1910, pp. 214-228.

<sup>1</sup> *Proc. U. S. Nat. Mus.*, XXXVIII., 251, 1910.

applies as well to species in which the female is the heterozygous sex as to those in which the male is heterozygous. The author does not hesitate to locate these factors in the chromosomes (though only one of them is in the X-chromosomes), and he is at considerable pains to show how this representation may be in harmony with the facts regarding several well-known cases of sex-limited inheritance. Crossing over (Morgan) is a modification of the regular process, but in no wise a contradiction.

Chapter XIII. is largely new. It relates to polymery, interference of genetic factors, sterility of hybrids and coupling of factors. Breeders, especially in Germany, come in for some sharp criticism for not adopting Mendelian methods and terminology. Inheritance in man is discussed in the final chapter of the book, which is new, and an extensive list of literature appearing from 1911 to 1913 is added to the old bibliography.

Numerous other changes, both additions and emendations, are made elsewhere. Many of these are made for pedagogical reasons. Some are of interest as indicating possible changes of the author's opinion. Thus, the author is now more inclined than formerly to regard the mutability of *Oenothera lamarckiana* as due to the hybridity of that species. He now leans more to the "Presence and Absence" theory of Bateson as representing the real truth. The chapter on inheritance of acquired characters is clarified, but the author's views are apparently little changed.

In a growing subject a book can scarcely be without errors. Thus, the four armadillo embryos of a litter are still referred to the first four blastomeres of the egg, whereas the reasons for so regarding them seem to have disappeared in the work of Patterson.<sup>2</sup> Typographical errors are few. Unfortunately, several of these have crept into the illustrations, but attention is directed to them in the legend.

The book is so good, however, that one can overlook its few faults. The new edition is plainly an improvement over the old. One

<sup>2</sup> Patterson, J. T., *Jour. Morph.*, Vol. 24, No. 4, 1913, pp. 559-662.

could wish it were to be translated into English for the benefit of the American students who will not read it in the original.

A. FRANKLIN SHULL

*Solvents, Oils, Gums, Waxes and Allied Substances.* By FREDERIC S. HYDE, S.B. Consulting Chemist, New York. New York, Van Nostrand. 1913. Price \$2.00.

These notes are for the use of factory chemists who wish a book on the subjects named which shall be condensed and authoritative.

The title suggests one of the good features of the book, that which gives the solvents for many of the substances mentioned; besides this, however, methods are given for the analysis of these compounds. In attempting to cover such a wide field it is not surprising that inaccuracies have crept in. For example, the statement regarding the Maumené-Sherman test (with sulphuric acid) is in error, as no dilution of the oil is necessary when using the ninety per cent. acid. The general unreliability of the Valenta test is not clearly stated. It is to be regretted that the "saponification equivalent" is again revived as it is infrequently met with at present. It should be noted that the New York State Tester is not commonly used for the ordinary lubricating oil—the Cleveland Cup is the one commonly employed. In the analysis of paints no reference is made to the use of the convenient centrifuge.

The book is one which will be very useful to all having to do with these substances.

A. H. GILL

#### SPECIAL ARTICLES

##### ADAPTATION OF THE TAMARISK FOR DRY LANDS

ALTHOUGH a specialist in the line of cereal investigations, the writer has had occasion during the past ten years, in connection with grain experiments in dry-farming in the Great Plains and Western States, to observe the comparative adaptation to conditions of drought of various orchard and forest trees. While certain trees, such as the black and honey locusts, the elm, Osage orange, hack-